Extron® Electronics
INTERFACING, SWITCHING AND DISTRIBUTION

User's Manual



VersaTools® MDA 3 Series

Video and Audio Mini Video Distribution Amplifiers

68-607-01 **Rev. D**
06 06

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Precautions

Safety Instructions • English

This symbol is intended to alert the user of important operating and maintenance (servicing) instructions in the literature provided with the equipment.

This symbol is intended to alert the user of the presence of uninsulated dangerous voltage within the product's enclosure that may present a risk of electric shock.

Caution

Read Instructions • Read and understand all safety and operating instructions before using the equipment.

Retain Instructions • The safety instructions should be kept for future reference.

Follow Warnings • Follow all warnings and instructions marked on the equipment or in the user information.

Avoid Attachments • Do not use tools or attachments that are not recommended by the equipment manufacturer because they may be hazardous.

Warning

Power sources • This equipment should be operated only from the power source indicated on the product. This equipment is intended to be used with a main power system with a grounded (neutral) conductor. The third (grounding) pin is a safety feature, do not attempt to bypass or disable it.

Power disconnection • To remove power from the equipment safely, remove all power cords from the rear of the equipment, or the desktop power module (if detachable), or from the power source receptacle (wall plug).

Power cord protection • Power cords should be routed so that they are not likely to be stepped on or pinched by items placed upon or against them.

Servicing • Refer all servicing to qualified service personnel. There are no user-serviceable parts inside. To prevent the risk of shock, do not attempt to service this equipment yourself because opening or removing covers may expose you to dangerous voltage or other hazards.

Slots and openings • If the equipment has slots or holes in the enclosure, these are provided to prevent overheating of sensitive components inside. These openings must never be blocked by other objects.

Lithium battery • There is a danger of explosion if battery is incorrectly replaced. Replace it only with the same or equivalent type recommended by the manufacturer. Dispose of used batteries according to the manufacturer's instructions.

Consignes de Sécurité • Français

Ce symbole sert à avertir l'utilisateur que la documentation fournie avec le matériel contient des instructions importantes concernant l'exploitation et la maintenance (réparation).

Ce symbole sert à avertir l'utilisateur de la présence dans le boîtier de l'appareil de tensions dangereuses non isolées posant des risques d'électrocution.

Attention

Lire les instructions• Prendre connaissance de toutes les consignes de sécurité et d'exploitation avant d'utiliser le matériel.

Conserver les instructions• Ranger les consignes de sécurité afin de pouvoir les consulter à l'avenir.

Respecter les avertissements • Observer tous les avertissements et consignes marqués sur le matériel ou présentés dans la documentation utilisateur.

Eviter les pièces de fixation • Ne pas utiliser de pièces de fixation ni d'outils non recommandés par le fabricant du matériel car cela risquerait de poser certains dangers.

Avertissement

Alimentations• Ne faire fonctionner ce matériel qu'avec la source d'alimentation indiquée sur l'appareil. Ce matériel doit être utilisé avec une alimentation principale comportant un fil de terre (neutre). Le troisième contact (de mise à la terre) constitue un dispositif de sécurité : n'essayez pas de la contourner ni de la désactiver.

Déconnexion de l'alimentation• Pour mettre le matériel hors tension sans danger, déconnectez tous les cordons d'alimentation de l'arrière de l'appareil ou du module d'alimentation de bureau (s'il est amovible) ou encore de la prise secteur.

Protection du cordon d'alimentation • Acheminer les cordons d'alimentation de manière à ce que personne ne risque de marcher dessus et à ce qu'ils ne soient pas écrasés ou pincés par des objets.

Réparation-maintenance • Faire exécuter toutes les interventions de réparation-maintenance par un technicien qualifié. Aucun des éléments internes ne peut être réparé par l'utilisateur. Afin d'éviter tout danger d'électrocution, l'utilisateur ne doit pas essayer de procéder lui-même à ces opérations car l'ouverture ou le retrait des couvercles risquent de l'exposer à de hautes tensions et autres dangers.

Fentes et orifices • Si le boîtier de l'appareil comporte des fentes ou des orifices, ceux-ci servent à empêcher les composants internes sensibles de surchauffer. Ces ouvertures ne doivent jamais être bloquées par des objets.

Lithium Batterie • Il a danger d'explosion s'll y a remplacment incorrect de la batterie. Remplacer uniquement avec une batterie du meme type ou d'un ype equivalent recommande par le constructeur. Mettre au reut les batteries usagees conformement aux instructions du fabricant.

Sicherheitsanleitungen • Deutsch

Dieses Symbol soll dem Benutzer in der im Lieferumfang enthaltenen Dokumentation besonders wichtige Hinweise zur Bedienung und Wartung (Instandhaltung) geben.

Dieses Symbol soll den Benutzer darauf aufmerksam machen, daß im Inneren des Gehäuses dieses Produktes gefährliche Spannungen, die nicht isoliert sind und die einen elektrischen Schock verursachen können, herrschen.

Achtung

Lesen der Anleitungen • Bevor Sie das Gerät zum ersten Mal verwenden, sollten Sie alle Sicherheits-und Bedienungsanleitungen genau durchlesen und verstehen.

Aufbewahren der Anleitungen • Die Hinweise zur elektrischen Sicherheit des Produktes sollten Sie aufbewahren, damit Sie im Bedarfsfall darauf zurückgreifen können.

Befolgen der Warnhinweise • Befolgen Sie alle Warnhinweise und Anleitungen auf dem Gerät oder in der Benutzerdokumentation.

Keine Zusatzgeräte • Verwenden Sie keine Werkzeuge oder Zusatzgeräte, die nicht ausdrücklich vom Hersteller empfohlen wurden, da diese eine Gefahrenquelle darstellen können.

Vorsicht

Stromquellen • Dieses Gerät sollte nur über die auf dem Produkt angegebene Stromquelle betrieben werden. Dieses Gerät wurde für eine Verwendung mit einer Hauptstromleitung mit einem geerdeten (neutralen) Leiter konzipiert. Der dritte Kontakt ist für einen Erdanschluß, und stellt eine Sicherheitsfunktion dar. Diese sollte nicht umgangen oder außer Betrieb gesetzt werden.

Stromunterbrechung • Um das Gerät auf sichere Weise vom Netz zu trennen, sollten Sie alle Netzkabel aus der Rückseite des Gerätes, aus der externen Stomversorgung (falls dies möglich ist) oder aus der Wandsteckdose ziehen.

Schutz des Netzkabels • Netzkabel sollten stets so verlegt werden, daß sie nicht im Weg liegen und niemand darauf treten kann oder Objekte darauf- oder unmittelbar dagegengestellt werden können.

Wartung • Alle Wartungsmaßnahmen sollten nur von qualifiziertem Servicepersonal durchgeführt werden. Die internen Komponenten des Gerätes sind wartungsfrei. Zur Vermeidung eines elektrischen Schocks versuchen Sie in keinem Fall, dieses Gerät selbst öffnen, da beim Entfernen der Abdeckungen die Gefahr eines elektrischen Schlags und/oder andere Gefahren bestehen.

Schlitze und Öffnungen • Wenn das Gerät Schlitze oder Löcher im Gehäuse aufweist, dienen diese zur Vermeidung einer Überhitzung der empfindlichen Teile im Inneren. Diese Öffnungen dürfen niemals von anderen Objekten blockiert werden.

Litium-Batterie • Explosionsgefahr, falls die Batterie nicht richtig ersetzt wird. Ersetzen Sie verbrauchte Batterien nur durch den gleichen oder einen vergleichbaren Batterietyp, der auch vom Hersteller empfohlen wird. Entsorgen Sie verbrauchte Batterien bitte gemäß den Herstelleranweisungen.

Instrucciones de seguridad • Español

Este símbolo se utiliza para advertir al usuario sobre instrucciones importantes de operación y mantenimiento (o cambio de partes) que se desean destacar en el contenido de la documentación suministrada con los equipos.

Este símbolo se utiliza para advertir al usuario sobre la presencia de elementos con voltaje peligroso sin protección aislante, que puedan encontrarse dentro de la caja o alojamiento del producto, y que puedan representar riesgo de electrocución.

Precaucion

Leer las instrucciones • Leer y analizar todas las instrucciones de operación y seguridad, antes de usar el equipo.

Conservar las instrucciones • Conservar las instrucciones de seguridad para futura consulta.

Obedecer las advertencias • Todas las advertencias e instrucciones marcadas en el equipo o en la documentación del usuario, deben ser obedecidas.

Evitar el uso de accesorios • No usar herramientas o accesorios que no sean especificamente recomendados por el fabricante, ya que podrian implicar riesgos.

Advertencia

Alimentación eléctrica • Este equipo debe conectarse únicamente a la fuente/tipo de alimentación eléctrica indicada en el mismo. La alimentación eléctrica de este equipo debe provenir de un sistema de distribución general con conductor neutro a tierra. La tercera pata (puesta a tierra) es una medida de seguridad, no puentearia ni eliminaria.

Desconexión de alimentación eléctrica • Para desconectar con seguridad la acometida de alimentación eléctrica al equipo, desenchufar todos los cables de alimentación en el panel trasero del equipo, o desenchufar el módulo de alimentación (si fuera independiente), o desenchufar el cable del receptáculo de la pared.

Protección del cables de alimentación • Los cables de alimentación eléctrica se deben instalar en lugares donde no sean pisados ni apretados por objetos que se puedan apoyar sobre ellos.

Reparaciones/mantenimiento • Solicitar siempre los servicios técnicos de personal calificado. En el interior no hay partes a las que el usuario deba acceder. Para evitar riesgo de electrocución, no intentar personalmente la reparación/mantenimiento de este equipo, ya que al abrir o extraer las tapas puede quedar expuesto a voltajes peligrosos u otros riesgos.

Ranuras y aberturas • Si el equipo posee ranuras o orificios en su caja/alojamiento, es para evitar el sobrecalientamiento de componentes internos sensibles. Estas aberturas nunca se deben obstruir con otros objetos.

Batería de litio • Existe riesgo de explosión si esta batería se coloca en la posición incorrecta. Cambiar esta batería únicamente con el mismo tipo (o su equivalente) recomendado por el fabricante. Desachar las baterías usadas siguiendo las instrucciones del fabricante.

FCC Class A Notice

Note: This equipment has been tested and found to comply with the limits for a Class A digital device, pursuant to part 15 of the FCC Rules. These limits are designed to provide reasonable protection against harmful interference when the equipment is operated in a commercial environment. This equipment generates, uses and can radiate radio frequency energy and, if not installed and used in accordance with the instruction manual, may cause harmful interference to radio communications. Operation of this equipment in a residential area is likely to cause harmful interference, in which case the user will be required to correct the interference at his own expense.

Note: These units was tested with shielded cables on the peripheral devices and between the transmitter and receiver. Shielded cables must be used with the units to ensure compliance.

Extron's Warranty

Extron Electronics warrants this product against defects in materials and workmanship for a period of three years from the date of purchase. In the event of malfunction during the warranty period attributable directly to faulty workmanship and/or materials, Extron Electronics will, at its option, repair or replace said products or components, to whatever extent it shall deem necessary to restore said product to proper operating condition, provided that it is returned within the warranty period, with proof of purchase and description of malfunction to:

USA, Canada, South America, and Central America:

Extron Electronics
1001 East Ball Road
Anaheim, CA 92805, USA

Europe, Africa, and the Middle East:

Extron Electronics, Europe
Beeldschermweg 6C
3821 AH Amersfoort
The Netherlands

Asia:
Extron Electronics, Asia
135 Joo Seng Road, #04-01
PM Industrial Bldg.
Singapore 368363

Japan:
Extron Electronics, Japan
Kyodo Building
16 Ichibancho
Chiyoda-ku, Tokyo 102-0082
Japan

This Limited Warranty does not apply if the fault has been caused by misuse, improper handling care, electrical or mechanical abuse, abnormal operating conditions or non-Extron authorized modification to the product.

If it has been determined that the product is defective, please call Extron and ask for an Applications Engineer at (714) 491-1500 (USA), 31.33.453.4040 (Europe), 65.6383.4400 (Asia), or 81.3.3511.7655 (Japan) to receive an RA# (Return Authorization number). This will begin the repair process as quickly as possible.

Units must be returned insured, with shipping charges prepaid. If not insured, you assume the risk of loss or damage during shipment. Returned units must include the serial number and a description of the problem, as well as the name of the person to contact in case there are any questions.

Extron Electronics makes no further warranties either expressed or implied with respect to the product and its quality, performance, merchantability, or fitness for any particular use. In no event will Extron Electronics be liable for direct, indirect, or consequential damages resulting from any defect in this product even if Extron Electronics has been advised of such damage.

Please note that laws vary from state to state and country to country, and that some provisions of this warranty may not apply to you.

安全须知 • 中文

这个符号提示用户该设备用户手册中的操作和维护说明。

这个符号警告用户该设备机壳内暴露的危险电压，有触电危险。

注意

阅读说明书 • 用户使用该设备前必须阅读并理解有安全和使用说明。

保存说明书 • 用户应保存安全说明书以备将来使用。

遵守警告 • 用户应遵守产品和用户指南上的所有安全和操作说明。

避免追加 • 不要使用该产品厂商没有推荐的工具或追加设备，以避免危险。

警告

电源 • 该设备只能使用产品上标明的电源。 设备必用有地线供电系统供电。第三条线（地线）是安设施，不能不用或跳过。

拔掉电源 • 为安全地从设备拔掉电源，请拔掉所有备后或桌面电源的电源线，或任何接到市电系统电源线。

电源线保护 • 妥善布线， 避免被踩踏，或重物挤压。

维护 • 所有维修必须由认证的维修人员进行。 设备部没有用户可以更换的零件。为避免出现触电危不要自己试图打开设备盖子维修该设备。

通风孔 • 有些设备机壳上有通风槽或孔，它们是用防止机内敏感元件过热。不要用任何东西挡住通风孔。

锂电池 • 不正确的更换电池会有爆炸的危险。必须使与厂家推荐的相同或相近型号的电池。按照生产厂的议处理废弃电池。

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Introduction

The Extron MDA 3 Series of Mini Distribution Amplifiers (MDAs) are a family of eight one-input, three-output, video and audio distribution amplifiers. The MDA series distribution amplifiers (DAs) split one composite video or S-video input and/or audio input for output to multiple destinations with no loss of signal quality. The MDA are members of the Extron VersaTools® line of basic distribution amplifiers, switchers, and associated video accessories.

The MDAs distribute composite video, S-video (luminance (Y) and chrominance (C)), and/or balanced or unbalanced audio on captive screw connectors, or unbalanced audio on RCA connectors, in the following combinations:

Distribution Amplifier	Part #	S-video	Composite video	Audio (captive screw connectors)	Audio (RCA connectors)
MDA 3SV	60-444-01	●			
MDA 3SVA	60-444-20	●		●	
MDA 3SV Dual	60-444-10	●2			
MDA 3V	60-439-01		●		
MDA 3AV	60-439-20		●	●	
MDA 3V Dual	60-439-10		●2		
MDA 3A	60-440-01			●	
MDA 3A RCA	60-440-30				●

2 = Two separate DAs.

The MDAs ship with external desktop 12 V power supplies that accept 100 to 240 VAC, 50 Hz or 60 Hz input.

Installation

The MDA 3 Series mini distribution amplifiers (DAs) can be mounted on a rack shelf, to a rack without a shelf, under a desk or tabletop, or on a projector bracket.

Rack mounting

For optional rack mounting, mount the MDA on any of the following rack shelves:

- RSF 123 VersaTools® rack shelf kit (part #**60-190-20**) (figure 1)
- RSB 123 VersaTools rack shelf (part #**60-604-20**)
- RSU 126 6" deep universal rack shelf kit (part #**60-190-10**)
- RSB 126 6" deep basic rack shelf (part #**60-604-10**)
- RSU 129 1U universal rack shelf kit (part #**60-190-01**) (figure 2)
- RSB 129 1U basic rack shelf (part #**60-604-01**)

On the standard rack shelf, the MDA mounts in one of four locations to the rear of the rack or in one of four locations to the front of the rack.

1. If feet were previously installed on the bottom of the MDA, remove them.
2. Mount the MDA on the rack shelf, using two 4-40 x 3/16" screws in opposite (diagonal) corners to secure the MDA to the shelf.
3. Install blank panel(s) or other unit(s) to the rack shelf.

NOTE *Only products in the VersaTools line can be mounted to a VersaTools shelf. Any 1U rack-mountable Extron product can be mounted on the standard shelf.*

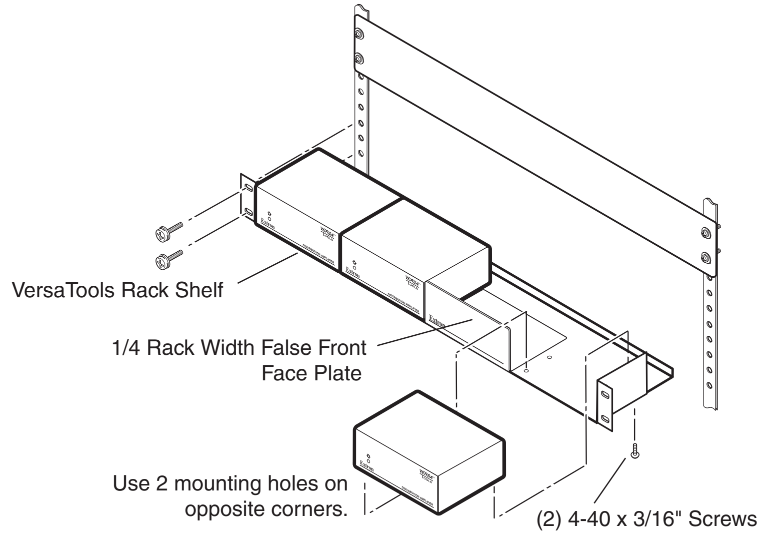


Figure 1 — Rack mounting the MDAs on a VersaTools rack shelf

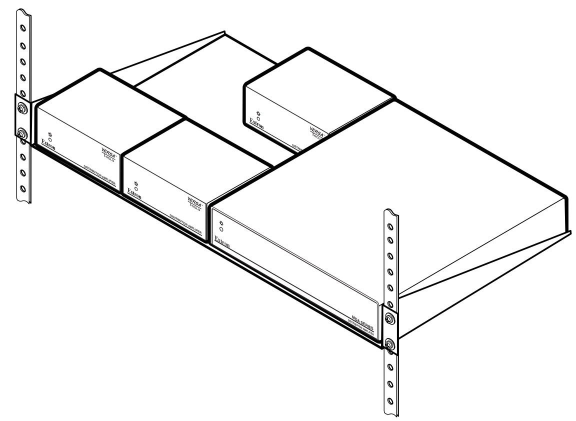


Figure 2 — MDAs mounted on a standard rack shelf

Back of the rack mounting

The MDA can be mounted to the rear of a rack using the Extron MBB 100 VersaTools® back of the rack mounting kit (part #**70-367-01**) (figure 3). The kit allows the product to be vertically mounted to the front or rear rack supports and facing either towards the front or the rear of the rack.

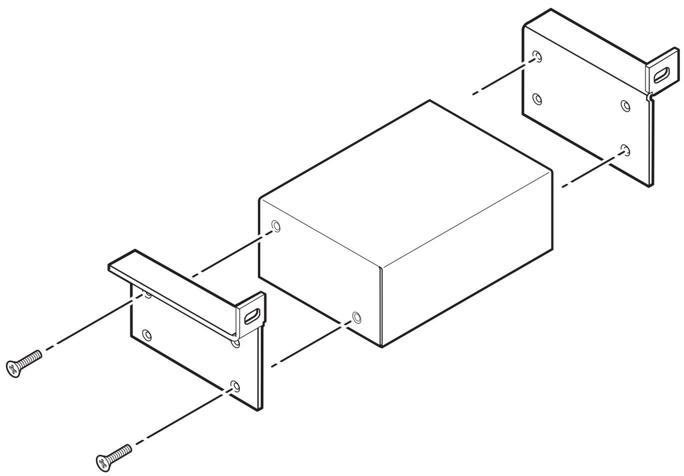


Figure 3 — Attaching the back of the rack kit

1. Remove feet from the bottom of the MDA if they are installed.

2. Remove two screws from one side of the unit. Retain the screws for possible later reassembly without the bracket.

3. Attach one bracket to the side of the unit using the longer screws included in the kit.

4. Repeat steps **2** and **3** on the other side of the unit.

5. Mount the unit to the rack using the two included rack screws (figure 4). The MDA can be vertically mounted facing in either direction.

NOTE *Only VersaTools products and most IP Link products can be mounted using the back of the rack mounting kit.*

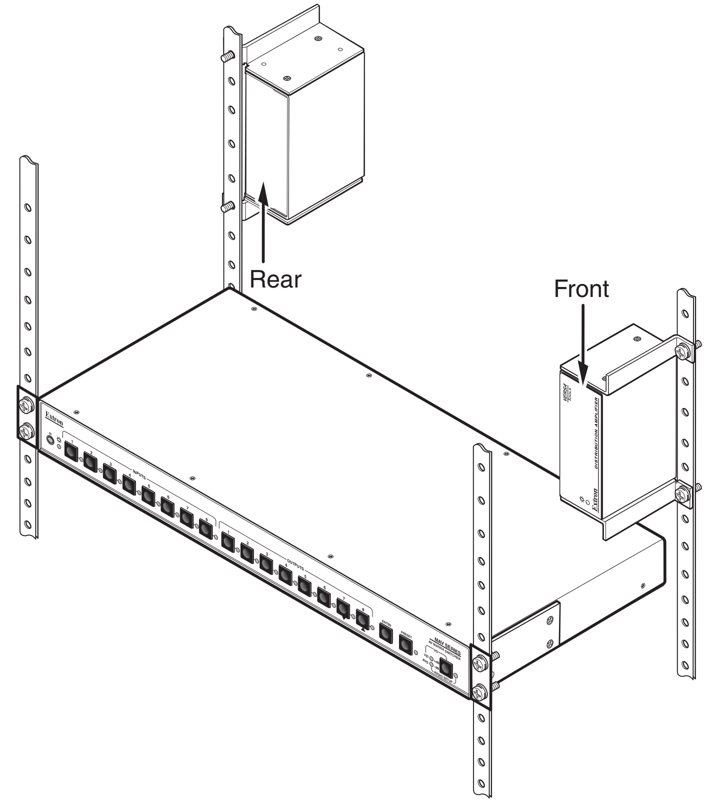


Figure 4 — Typical back of the rack installations

Furniture or projector mounting

Furniture mount or projector mount the MDA using the optional Extron MBU 123 VersaTools® under desk mounting kit (part #**70-212-01**); or VersaTools® PMK 100 mini projector mounting kit (part #**70-217-01**) as follows:

1. Attach the mounting brackets to the MDA with the machine screws provided (figure 5).

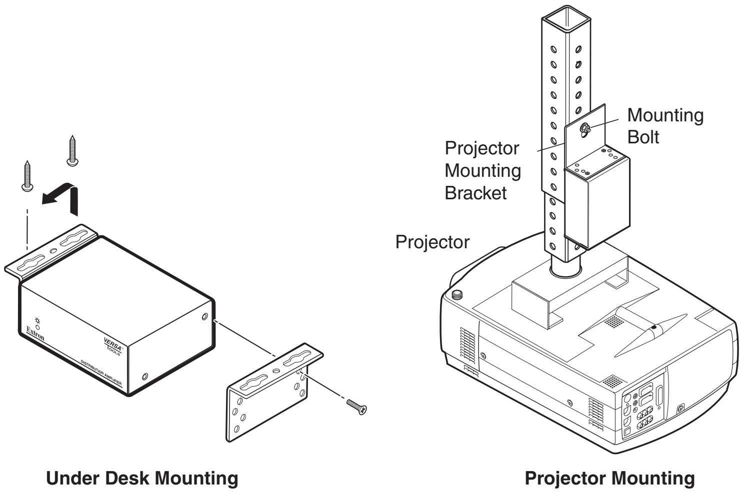


Figure 5 — Desk and projector mounting the MDAs

2. If feet were previously installed on the bottom of the MDA, remove them.
3. **For furniture mounting,** hold the MDA with the attached brackets against the underside of the table or other furniture. Mark the location of the screw holes of the bracket on the mounting surface.
4. **For furniture mounting,** drill 3/32" (2 mm) diameter pilot holes, 1/4" (6.3 mm) deep in the mounting surface at the marked screw locations.
5. **For furniture mounting,** insert #8 wood screws into the four pilot holes. Tighten each screw into the mounting surface until just less than 1/4" of the screw head protrudes.
6. **For furniture mounting,** align the mounting screws with the slots in the brackets and place the MDA against the surface, with the screws through the bracket slots.
7. **For furniture mounting,** slide the MDA slightly forward or back, then tighten all four screws to secure the MDA in place.

8. **For projector mounting,** secure the MDA to a projector mount or other surface by inserting the mounting bolt through the bracket's slotted hole.

Connections, Controls, and Indicator

See figure 6, figure 7, and figure 11 to make the following connections. The figures show all of the combinations of connectors that you may encounter with your MDA.

S-video (MDA 3SV, MDA 3SVA, MDA 3SV Dual)

① **Input connector (s)** — Connect an S-video input to this 4-pin mini DIN connector (figure 6 and figure 7). On the Dual model (figure 7), Input A and Input B are completely separate inputs to two separate distribution amplifiers.

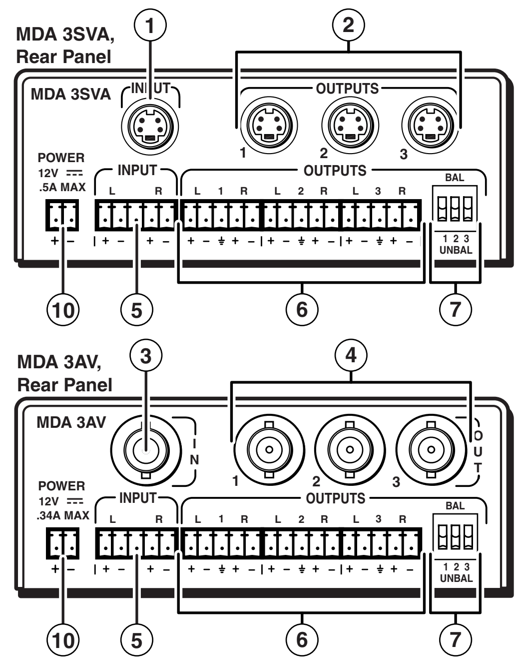


Figure 6 — MDA 3 Series front and rear panels

② **Out connector or Outputs (1 through 3) connectors** — Connect up to three S-video devices to these 4-pin mini DIN connectors. On the Dual model, the A output signals are identical to the A input, and the B output signals are identical to the B input.

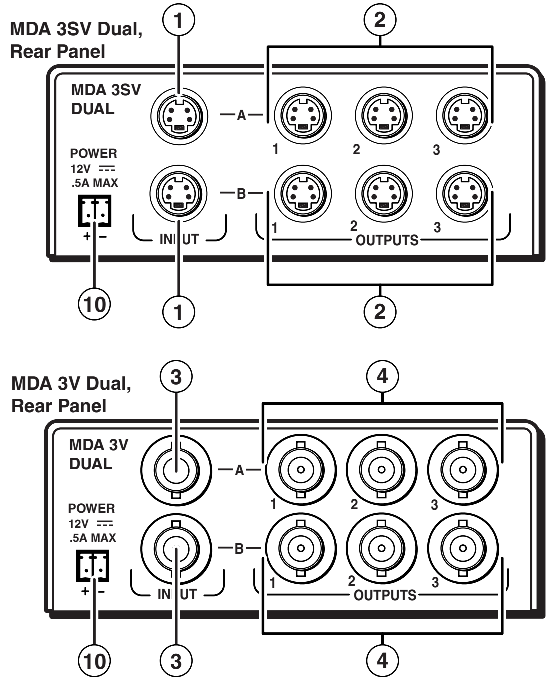


Figure 7 — MDA 3SV Dual and MDA 3V Dual rear panels

Composite video (MDA 3V, MDA 3AV, MDA 3V Dual)

③ **In connector or Input connector** — Connect a composite video input to this BNC connector. On the Dual model (figure 7), Input A and Input B are completely separate inputs to two separate distribution amplifiers.

④ **Out connector or Outputs (1 through 3) connectors** — Connect up to three composite video devices to these BNC connectors. On the Dual model (figure 7), the A output signals are identical to the A input, and the B output signals are identical to the B input.

Audio on captive screw connectors (MDA 3AV, MDA 3SVA, MDA 3A)

⑤ **Audio Input connector** — Connect a balanced or unbalanced audio input to this 3.5 mm, 5-pole captive screw connector. Connectors are included, but you must supply the audio cable. See figure 8 to wire a connector for the appropriate input type and impedance level. High impedance is generally over 800 ohms.

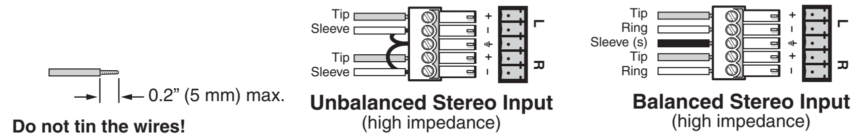


Figure 8 — Captive screw input connector wiring

NOTE *When making connections for the MDA from existing audio cables, see figure 9. A mono audio connector consists of the tip and sleeve. A stereo audio connector consists of the tip, ring and sleeve. The ring, tip, and sleeve wires are also shown on the captive screw audio connector diagrams, figure 8 and figure 10.*

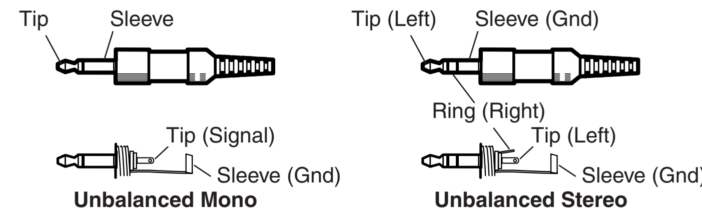


Figure 9 — Phono audio connectors

⑥ **Audio Outputs (1 through 3) connectors** — Connect up to three balanced or unbalanced audio devices to these 3.5 mm, 5-pole captive screw connectors. Connect audio devices, such as an audio amplifier or powered speakers. See figure 10 to properly wire an output connector.

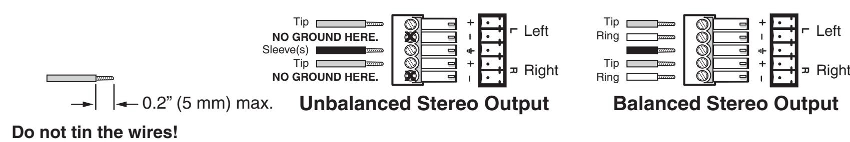
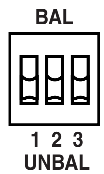


Figure 10 — Captive screw connector wiring for audio output

CAUTION *Connect the sleeve to ground (Gnd). Connecting the sleeve to a negative (-) terminal will damage the audio output circuits.*

7 **Bal(anced)/Unbal(anced) DIP switches** — For each balanced audio output, set the associated DIP switch to the Balanced (up) position. For each unbalanced audio output, set the associated DIP switch to the Unbalanced (down) position.



The balanced or unbalanced nature of the audio output is determined by the output connector wiring, not the audio input. Each output can be balanced or unbalanced independently of the other two outputs.

Audio on RCA connectors (MDA 3A RCA)

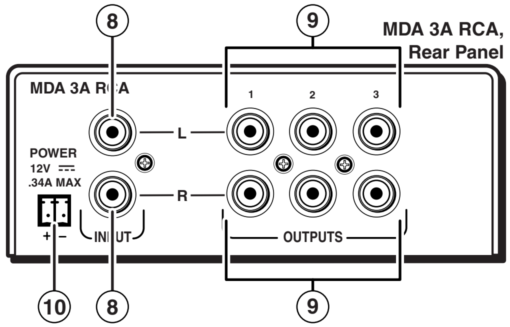


Figure 11 — MDA 3A RCA rear panel

8 **Audio Input connectors** — Connect an unbalanced stereo audio source to these L(eft) and R(ight) RCA connectors.

9 **Audio Outputs (1 through 3) connectors** — Connect up to three stereo audio devices to these L(eft) and R(ight) RCA connectors.

Power (all models)

CAUTION *Power supply voltage polarity is extremely important. Applying power with incorrect voltage polarity could damage the power supply and the MDA. Identify the power cord negative lead by the ridges on the side of the cord.*

10 **Power connector —** Plug the external 12 VDC power supply into this 2-pole captive screw connector. The power supply is included with the unit. Figure 12 shows how to wire the connector.

CAUTION *Power supply voltage polarity is critical. Incorrect voltage polarity can damage the power supply and the MDA. Identify the power cord negative lead by the ridges on the side of the cord (figure 12).*

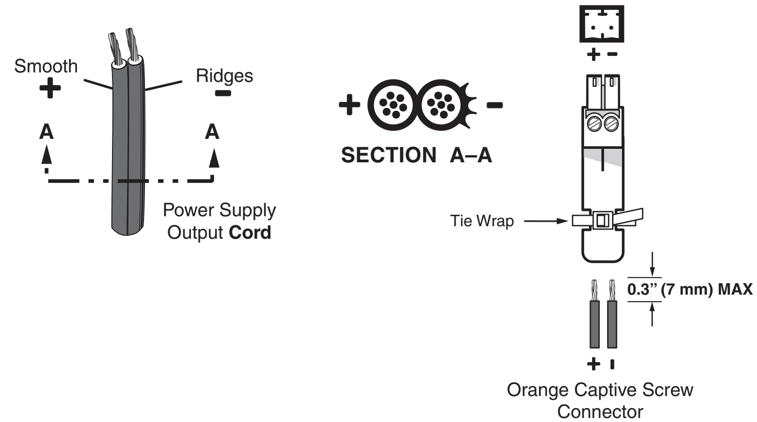


Figure 12 — Power connector wiring

CAUTION *The length of the exposed (stripped) copper wires is important.* ***The ideal length is 0.3″ (7 mm).*** *Longer bare wires can short together. Shorter wires are not as secure in the captive screw connectors and could be pulled out.*

Use the supplied tie-wrap to strap the power cord to the extended tail of the connector.

NOTE *Your MDA may have shipped with a* ***blue captive screw connector****. This blue connector can be plugged into either a blue or an orange power receptacle.*

The ideal length of exposed (stripped) copper wire for the blue connector is 0.2″ (5 mm).

The blue connector does not have the extended tail or the included tie-wrap.

NOTE *Do not tin the stripped power supply leads before installing the captive screw connector. Tinned wires are not as secure in the captive screw connectors and could be pulled out.*

To verify the polarity before connection, plug in the power supply with no load and check the output with a voltmeter.

WARNING *The two power cord wires must be kept separate while the power supply is plugged in. Remove power before wiring.*

As an alternative, an Extron P/S 100 Universal 12 VDC Power Supply, part #**60-357-01**, can power multiple MDAs or other Extron 12 VDC devices using only one AC power connector.

⑪ **Power LED** (figure 13) — When lit, this LED indicates power is applied to the MDA.

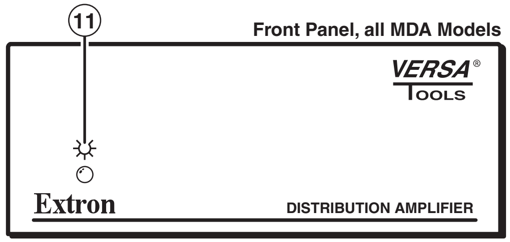


Figure 13 — MDA 3 Series front panel (all models)

Specifications

Video

Gain .... Unity
Bandwidth .... 100 MHz (-3 dB)

Video input

Number/signal type
- MDA 3SV/3SVA — 1 S-video
- MDA 3SV Dual .... 2 S-video
- MDA 3V/3AV .... 1 composite video
- MDA 3V Dual .... 2 composite video

Connectors
- MDA 3SV/3SVA — (1) 4-pin mini DIN female
- MDA 3SV Dual .... (2) 4-pin mini DIN female
- MDA 3V/3AV .... 1 BNC female
- MDA 3V Dual .... 2 BNC female

Nominal level .... 1 Vp-p for Y of S-video and for composite video
0.3 Vp-p for C of S-video
Minimum/maximum levels .... 0.4 V to 2.0 Vp-p for composite video or Y of S-video with no offset
Impedance .... 75 ohms
Return loss
- MDA 3SV/3SVA
- MDA 3SV Dual .... <-25 dBB @ 0 to 10 MHz
- All other models .... <-27 dB @ 5 MHz

DC offset (max. allowable) .... 5.0 V
Input coupling .... AC

Video output

Number/signal type
- MDA 3SV/3SVA .... 3 buffered S-video
- MDA 3SV Dual .... 2 x 3 buffered S-video
- MDA 3V/3AV .... 3 buffered composite video
- MDA 3V Dual .... 2 x 3 buffered composite video

Connectors
- MDA 3SV/3SVA .... (3) 4-pin mini DIN female
- MDA 3SV Dual .... (6) 4-pin mini DIN female
- MDA 3V/3AV .... 3 BNC female
- MDA 3V Dual .... 6 BNC female

Nominal level .... 1 Vp-p for Y of S-video and for composite video
0.3 Vp-p for C of S-video
Minimum/maximum levels .... 0.4 V to 2.0 Vp-p, follows input
Impedance .... 75 ohms
Return loss .... <-30 dB @ 5 MHz
DC offset .... ±50 mV with input at 0 offset

Sync

Standards .... NTSC 3.58, NTSC 4.43, PAL, SECAM

Audio — MDA 3AV, MDA 3SVA, MDA 3A/3A RCA

Gain
- DIP switch set to match output type — Unity (0 dB)
- DIP switch not matched to output type

DIP Switch Setting	Output Wiring	
	Unbalanced	Balanced
Balanced	0 dB	-6 dB
Unbalanced	+6 dB	0 dB

Frequency response .... 20 Hz to 20 kHz, ±0.05 dB
THD + Noise .... 0.03% @ 1 kHz at nominal level
S/N
- MDA 3A .... >90 dB, unbalanced, at maximum output
- All other models w/audio >90 dB, balanced at maximum output

Stereo channel separation .... >80 dB @ 1 kHz; >60 dB @ 20 kHz
CMRR .... >75 dB @ 20 Hz to 20 kHz

Audio input — MDA 3AV, MDA 3SVA, MDA 3A/3A RCA, MDA 5A RCA

Number/signal type
- MDA 3A RCA: 1 stereo unbalanced
- MDA 3AV, MDA 3SVA, MDA 3A: 1 stereo balanced/unbalanced

Connectors
- MDA 3A RCA: 2 RCA connectors
- MDA 3AV, MDA 3SVA, MDA 3A: (1) 3.5 mm captive screw connector, 5 pole

Impedance
- MDA 3A RCA: >10k ohms unbalanced, DC coupled
- MDA 3AV, MDA 3SVA, MDA 3A: >50k ohms unbalanced, >25k ohms balanced, DC coupled

Nominal level .... +4 dBu (1.23V), 0 dBu (0.775 V), -10 dBV (316 mV), -20 dBV (100 mV) compatible

Maximum level
- MDA 3A .... +17 dBu (unbalanced) at 1%THD+N
- All other models w/audio +24 dBu (balanced) at 1%THD+N

NOTE *0 dBu = 0.775 Vrms, 0 dBV = 1 Vrms, 0 dBV ≈ 2 dBu*

Audio output — MDA 3AV, MDA 3SVA, MDA 3A/3A RCA

Number/signal type
- MDA 3A RCA .... 3 stereo, unbalanced
- MDA 3AV, MDA 3SVA, MDA 3A: 3 stereo, balanced/unbalanced

Connectors
- MDA 3A RCA .... 6 RCA connectors
- MDA 3AV, MDA 3SVA, MDA 3A: (3) 3.5 mm captive screw connectors, 5 pole

Impedance
- MDA 3A RCA: 50 ohms unbalanced
- MDA 3AV, MDA 3SVA, MDA 3A: 50 ohms unbalanced, 100 ohms balanced

Gain error .... ±0.1 dB channel to channel

Maximum level (Hi-Z)
- MDA 3A .... +15 dBV, unbalanced, at 1%THD+N
- All other models w/audio >+24 dBu, balanced at 1%THD+N

Maximum level (600 ohm)
- MDA 3A .... >+14 dBm, unbalanced, at 1%THD+N
- All other models w/audio >+15 dBm, balanced or unbalanced, at 1%THD+N

General

External power supply .... 100 VAC to 240 VAC, 50/60 Hz, 5 watts, external, autoswitchable; to 12 VDC, 1 A (max.), regulated

Power input requirements
- MDA 3V/3SV .... 12 VDC, 0.1 A (max.)
- MDA 3AV/3SVA .... 12 VDC, 0.3 A (max.)
- All other models .... 12 VDC, 0.2 A (max.)

Temperature/humidity .... Storage: -40 to +158 °F (-40 to +70 °C) / 10% to 90%, noncondensing
Operating: +32 to +122 °F (0 to +50 °C) / 10% to 90%, noncondensing

Rack mount .... Yes, with optional 1U rack shelf, part #60-190-01, or 60-604-01; or the VersaTools® rack shelf, part #60-190-20, or 60-604-20

Enclosure type .... Metal

Enclosure dimensions .... 1.7" H x 4.3" W x 3.0" D (1U high, quarter rack wide)
4.2 cm H x 11.0 cm W x 7.6 cm D
(Depth excludes connectors and knobs.)

Product weight
- MDA 3V, MDA 3SVA ..... 0.4 lbs (0.2 kg)
- MDA 3V Dual .... 0.7 lbs (0.3 kg)
- MDA 3AV .... 0.6 lbs (0.3 kg)
- MDA 3SV .... 0.4 lbs (0.2 kg)
- MDA 3SV Dual, MDA 3A . 0.5 lbs (0.2 kg)
- MDA 3A RCA .... 0.4 lbs (0.2 kg)

Shipping weight
- MDA 3V, MDA 3V Dual . 3 lbs (2 kg)
- MDA 3AV .... 3 lbs (2 kg)
- MDA 3SV, MDA 3SV Dual 2 lbs (1 kg)
- MDA 3SVA .... 2 lbs (1 kg)
- MDA 3A RCA .... 2 lbs (1 kg)

Vibration	ISTA 1A in carton (International Safe Transit Association)
Listings	UL, CUL
Compliances	CE, FCC Class A, VCCI, AS/NZS, ICES
MTBF	30,000 hours
Warranty	3 years parts and labor

NOTE *All nominal levels are at ±10%.*

NOTE *Specifications are subject to change without notice.*